

27MnCrB5-2 All

General Information

WR-Steel®

(Wear resistant) WR-steel, stands for wear-resistant steel. This group of steel includes a broad range of grades with a wide range of hardness levels 350 – 650 HV, dimensions and steel grades designed to give you a wear-resistant advantage when making product exposed to a high degree of wear and where service life is important. WR-steels are characterised by consistent properties and cost effectiveness due to optimized alloy content for different end applications.

For additional Heat Treatment Data, please visit the Heat Treatment Guide.

Similar designations

SB9660 - 27MnCrB5-2, SB9652 - 28MnCrB5-2, SB9667 - 29MnCrB5-2, BCM 311

Chemical composition

Variant	Cast	Weldability		C %	Si %	Mn %	P %	S %	Cr %	Ti %	Al %	B %
SB27M12CB (SB9660)	CC	CEV 0.58 _{max}	Min	0.25	0.15	1.00	-	-	0.30	-	-	0.0010
		Pcm 0.39 _{max}	Max	0.30	0.35	1.40	0.035	0.035	0.60	-	0.040	0.0060
SB28M12CB (SB9652)	CC	CEV 0.6 _{max}	Min	0.24	0.10	1.10	-	-	0.30	0.020	-	0.0008
		Pcm 0.4 _{max}	Max	0.30	0.40	1.30	0.035	0.035	0.60	0.050	-	0.0050
SB29M13CB (SB9667)	CC	CEV 0.62 _{max}	Min	0.28	0.15	1.10	-	-	0.25	-	-	0.0020
		Pcm 0.41 _{max}	Max	0.33	0.40	1.50	0.030	0.030	0.60	-	-	0.0050
5464 (BCM311)	CC	CEV 0.58 _{max}	Min	0.24	-	1.10	-	-	0.30	-	-	0.0008
		Pcm 0.39 _{max}	Max	0.30	0.40	1.40	0.025	0.035	0.60	-	-	0.0050
27MnCrB5-2 EN10083-3:2006 (ref)	Std	CEV 0.58 _{max}	Min	0.24	-	1.10	-	-	0.30	-	-	0.0008
		Pcm 0.39 _{max}	Max	0.30	0.40	1.40	0.025	0.035	0.60	-	-	0.0050

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A ₅ [%]	Reduction of area Z _{min} [%]	Hardness	Impact (ISO-V) strength _{min}
SB28M12CB (SB9652)	+AR	Flat bar	15 < 60	-	-	-	-	< 240 HB	-
	+AR	Round bar	< 90	-	-	-	-	< 250 HB	-
5464 (BCM311)	+QW	Round bar	70 typical	850	1050-1300	10	45	33-41 HRC	20 °C 30 J (long)
	+QT	Round bar	70 typical	700	800-1000	14	55	22-31 HRC	20 °C 70 J (long)

R_{p0.2} * R_{eh}, ** R_{el}

BCM 311 +QT tempered at 500°C

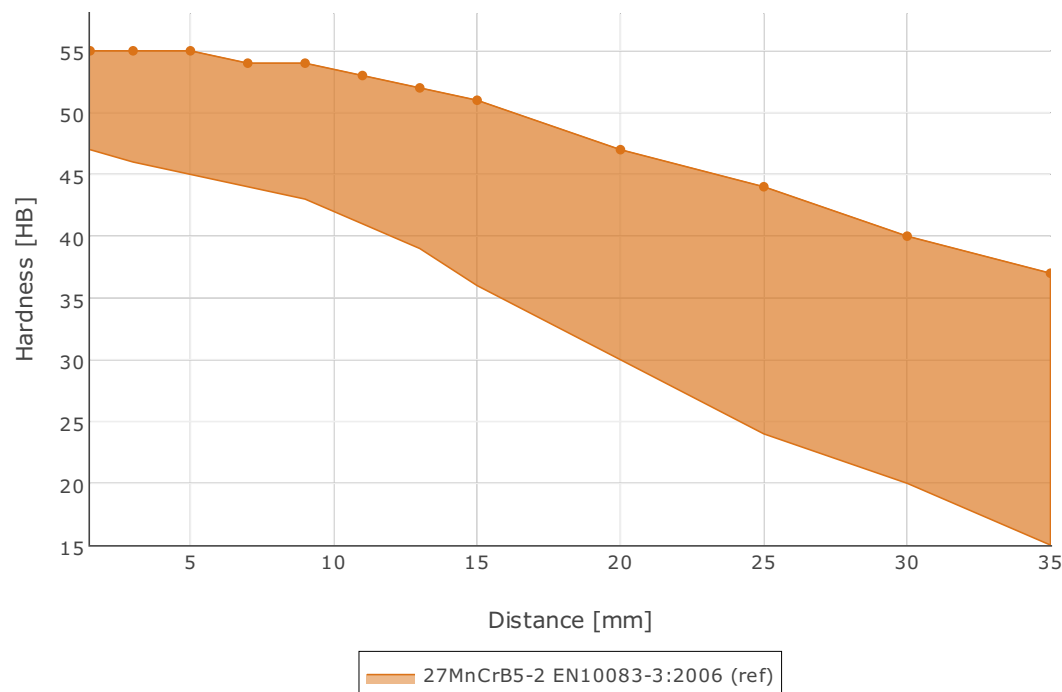
Transformation temperatures

	Temperature °C
MS	382
AC1	720
AC3	786

Heat treatment recommendations

Treatment	Condition	Temperature cycle	Cooling/quenching
Quench & Tempering	+QT	880 - 910 °C	in water or oil

Hardenability



Other properties (typical values)

Youngs module (GPa)	Poisson's ratio (-)	Shear module (GPa)	Density (kg/m ³)
210	0.3	80	7800
Average CTE 20-300°C (µm/m ² K)	Specific heat capacity 50/100°C (J/kg ² K)	Thermal conductivity Ambient temperature (W/m ² K)	Electrical resistivity Ambient temperature (µΩm)
12	460 - 480	40 - 45	0.20 - 0.25

Contact us

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